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1.0 Research Project Summary: Mobile Cell Phones and Poverty Reduction: Technology Spending Patterns and Poverty Level Change among Households in Uganda

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1.1 Abstract

This paper examines the spending behaviour of households with mobile phones in rural agricultural Uganda and whether such strategies such as substitutions have affected the well-being of these community members. According to the findings, rural households are willing to make sacrifices such as travel expenses and store-bought food budget in order to address the expenses of mobile phone services. While gender inequality through exacerbated asset control and mobile phone inexperience drive further digital divide in this village, the proliferation of small businesses development encourages phone ownership for women. Such strategies to afford a mobile phone or mobile phone services are undertaken to help facilitate long-term asset accumulation. For development studies, the analysis recommends a revised form of development thinking in a growing knowledge economy.

1.2 Summary

The International Telecommunication Union (ITU), an United Nations-funded agency, announced that in 2006, four billion mobile and fixed phones were in use around the world (ITU, 2007a: 9). Of the mobile phone users, 61 % are first time subscribers from developing countries. Africa, alone, now accounts for 192.5 million of these mobile phone subscribers, an increase of almost 660 % compared to 2001 figures (ITU, 2007b). This dramatic expansion of Information and Communications Technology (ICT) has been heralded as a potentially productive tool in economic development. A recent study is reporting that developing countries could stand to gain increases of close to 0.59 % of their Gross Domestic Products (GDP) if their populations gain 10 phones per 100 people

(Waverman *et al.*, 2005: 11). With the proliferation of cheaper mobiles and lowering costs of network connections, mobile phones in particular appear to drive affordable and enabling technology, even for the economies of the developing world. This suggests that telecommunication firms have gone beyond developed countries' saturated mobile phone markets and are moving to capture new consumers within emerging markets. Mobile phones show potential for higher national growth rates, and increasing industry interest, particularly in emerging areas where phones were once non-existent.

While there are many examples of ICT projects which aim for lower transaction costs, diminished risks, and improved efficiency (Cecchini & Scott, 2003; Wattegama, 2005), little research actually explores how mobile phones impact on rural poverty and development. Rhodes suggests that this lack of research keeps the economic effect of ICT use in rural communities "speculative" (Rhodes, 2002: 270). A dearth of direct evidence would also mean that aggregated macroeconomic information on ICT is incomplete. The opportunity to make beneficial ICT policy decisions, targeted at the poor, is therefore missed. Governments in developing countries, or non-governmental organizations who seek to implement ICTs within their national poverty reduction strategy frameworks, can justify their investment in technology by referring to conclusive research on the effects of ICT on the poor. The current popularity of and expenditure on mobile phones, as well as the potential impact on pro-poor policies makes a strong case for research.

Previous research on poverty impacts from mobile phones or technology spending is limited. Few publications explore household expenditures on mobile phones and the impact of these expenditures by substitute phone and airtime purchases for other items (Milne, 2006; Ureta, 2005). In Milne's study of four developing countries, a growth in income sees a drop of food spending in proportion to an increase in communication spending (Milne, 2006: 9). Banerjee and Duflo's study suggests the substitution of festival outing costs for ICT ownership (Banerjee & Duflo, 2006: 6). In the "Towards an Africa e-Index" study, the Research ICT Africa! (RIA!) researchers find some African households paying up to 10% of their expenditure budget on ICTs when 2-3% is the average ICT budget spending in developed countries (Gillwald, 2005: 13). The updated research on household expenditures and market demand on mobile phones can ensure

that national policy such as universal access legislation acknowledge target population needs. The focus of this dissertation is to explore spending behaviour in rural Uganda and to see if any impact evidence can influence future rural communication policy research in the country.

1.3 Uganda and Telecommunications

Uganda, with a Gross National Income (GNI) per capita at USD $ 280 (UNDP, 2007) and with 84 % of the population living in rural areas, is a country experiencing a similarly dramatic increase in mobile phone usage. Uganda had over 3.5 million subscribers and 2.4 billion minutes of domestic calls in the 2006/07 fiscal year (Masambu, 2007a: 13 & 17). The subscriber numbers have risen since the liberalization of the communication sector and creation of the Uganda Communication Act of 1997 (UCC, 1997). The core objectives of the policy were to ensure widespread coverage and affordability of mobile phones in the region.

The Act has benefited some citizens through greater network choice and lower costs for telephony, however, some of Uganda's rural poor remain out of network coverage or unable to afford mobile phones. Such inaccessibility further drives the „digital divide', i.e. isolation from technology and missed socio-economic opportunities. The Ugandan government recently implemented the Rural Communications Development Fund to meet the communication needs of the disadvantaged (UCC, 2001), but regulators must first understand the dynamics of the mobile phone market for economic growth and the strategies for communication by the poor. This Uganda case study brings an unique perspective of how poor households have changed their spending patterns after their choice of mobile phone handset purchase or services, given the recent changes of their external environment. This case study will particularly examine three areas in spending behaviour: substitutions made for mobile phones, financial services provision, and intra-household asset negotiation. The findings of the spending behaviour will help then to explain the effects on well-being and livelihoods for the rural poor. Research is necessary for Uganda to maintain favourable conditions for all citizens in a growing IT-based knowledge economy. Uganda, a majority rural country with

progressive regulation, competitive mobile phone industry and dramatic growth provides an ideal case study conditions to demonstrate the impacts of mobile phones on the rural citizens of the country.

1.4 Study Rationale

1.4.1 What does the 'D' really mean in ICT4D research?

Research in the field of Information and Communication Technology for Development (ICT4D) has historically concentrated on technological impact and much less on socio-economic impact. Agencies deployed new technologies in villages, tested functionality, and then documented technical successes or failures. Heeks states that ICT4D articles have usually focused on the "case application of the theory rather than the theory itself" (Heeks, 2006: 1). The lack of development theory and policy implications behind technology means a need to test ICT4D research paradigms and frameworks, which could stimulate future developmental research and debate.

Current work on developing theory in ICT4D includes the poverty concept application of the sustainable livelihood framework (Duncombe, 2006; Albu & Scott, 2001). This pilot case study works in conjunction with the University of KwaZulu-Natal (UKZN) School of Development Studies' project, „Poverty and ICTs in Rural and Urban East Africa' (PICTURE Africa). The pilot study applies the framework in its data collection. The larger PICTURE Africa project develops household surveys and qualitative data with an ICT emphasis in order to develop a poverty framework and to observe the multi dimensions of poverty as it applies to ICTs in East Africa[1]. This dissertation research will contribute towards this project as well as ICT4D research by contributing to new evidence of socio-economic implications of mobile phones.

1.4.2 Rationale: Gender and ICTs

Gender and generational inequalities are usually sidetracked by ICT4D studies

[1] While the pilot study was informed by a methodology development PICTURE Africa workshop in December 2006 and further discussions with the project's researchers, this research is an independent stand-alone piece of work designed, collected and analysed by the researcher.

when technical outputs are more important in the study than observing the further digital divide between men and women. Gender and ICT expert, Nancy Hafkin notes "that while technology empowers, it also very much affects and alters gender relations" (Hafkin, 2007:1). The question remains as to how the technology playing field can provide both men and women with an equal opportunity at resources and skills. Governments are realizing the issue of gender non-neutrality with ICTs. Uganda's policy framework, under the Ministry of Works, Housing and Communications (MoWHC), attempts to address gender through objective 4.2 (j): "to ensure gender mainstreaming in information and communication programmes and in ICT development" (MoWHC, 2003: 33). Gender research, particularly in ICTs, can benefit policy, which aims at addressing the digital divide between men and women. The research from this study will attempt to show mobile phone adoption has contributed to changes within households in terms of asset ownership and budget spending decisions between household members.

1.5 Objectives and Research Questions

Given the need for research in the area of ICTs and poverty, the fundamental research question that this project hopes to answer is how has access to mobile phones affected the spending behaviours of households in rural Uganda. The following sub-questions are proposed:

Substitution: What substitution choices did an individual within a household make in exchange for the mobile phone or mobile phone services?

Savings or Financial Services: How have individuals and households changed their financial planning as a result of mobile phone ownership and usage?

Users within Households: How are individuals within households negotiating budgets to take account of mobile phone use?

Under the proposed sub-questions, this research project first assesses how households manipulate their expenditure budgets in order to acquire mobile phones and their services. This study attempts to appraise the opportunity costs that households give

up in order to acquire mobile phones. The study will also explore how new and existing financial services usage have changed in order to meet their spending behaviour needs. With the proliferation of microfinance institutions, informal savings groups and direct airtime transfers, the changes in financing their spending can be investigated. Lastly, the changes of negotiation power within a household can be investigated in order to see if the mobile phone's entry in to the home changes the expenditure budget control among family members. The aspects of substitution, financial services provision and intra-household dynamics will all contribute to the understanding of mobile phone spending and behaviour in a household.

Given the spending strategies of households, the research hopes to also address how these adjustments in spending behaviours have an impact upon the household's level of well-being. The research that aims to answer these questions will be based upon a case study, which will take place in rural Uganda. This case study will provide an opportunity to examine a specific experience with mobile phones within a particular political and social context in eastern Africa and engage further ICT4D research and debate.

Ultimately, the mobile phone is a tool that enables citizens to communicate with family and friends, to save on transport costs, to identify and to take advantage of economic opportunities and to react immediately to mitigate shocks and vulnerable situations. The ability to understand these changes in terms of savings and costs for the household will provide evidence for policy makers on the developmental progress which is contributed through technology and, thereby, improve ways of better telecommunication outreach to the poor and rural areas.

1.6 Sustainable Livelihoods Approach

This study will attempt to determine the micro-level effects of mobile phones upon households. The sustainable livelihoods framework (SLF) approach to poverty will analyze how the assets accumulated by households are utilised towards their household livelihood strategy and what effect such strategies have on their well-being. The first research problem will look at how the five SLF capital assets (physical, natural, social, human, financial capital) are transformed in strategies of substitution, financial services,

and household member negotiation. This approach will draw its data from a pilot study survey conducted in June 2007. The sustainable livelihoods approach is a people-centred, systematic methodology which provides a straight-forward sense of livelihood outcomes when technology is introduced into the lives of the disadvantaged. However, this singular one-time use within a poverty profile fails to account for the dynamic nature of the poor: how the poor can move in and out of poverty across time and the differences in inflation. Nevertheless, the sustainable livelihoods approach is best used for observing impact of mobile phones in this project because the framework is simple to follow and is becoming well practiced around the world. It is envisaged that the PICTURE Africa survey will employ other poverty measuring approaches during their study.

1.7 The Case Study in rural Uganda

This project analyses the changing expenditure patterns within households influenced by mobile phones, and draws out possible conclusions on individual and household poverty level changes. The research uses the qualitative results from a pilot study in Katote, Uganda, undertaken in June 2007, where several qualitative methods were applied: a) ethnographic observation (including staying with a family in their village), b) key informant interviews (ex. airtime re-sellers, mobile phone repair), c) 6 mobile phone diaries, d) 6 interviews to households and, e) 3 focus group discussions with men and women from poor households in rural settings. Selection of location was purposive and was chosen with the help of a field research assistant and the Network of Ugandan Research and Research Users (NURRU), a group of researchers familiar with field work in Uganda. Katote village in the Wakiso district twenty-five kilometres from the capital city, Kampala, was chosen using the following criteria: rural but accessible by local taxi or bicycle to nearby town, mobile phone connectivity, safety, and ability to stay with a household home for the duration of the study.

The researcher transcribed taped interviews, cleaned up data, coded the transcripts and processed the data through an open source qualitative tool called TAMS Analyser using case study analysis. This is a pilot study which will then be followed by more comprehensive ICT focus group discussions for PICTURE Africa's future qualitative work. The analysis of this data for this dissertation will explore the changes of

expenditure patterns of households, and whether any changes have led to changes of well-being levels using before and after analysis. The study analysis attempts also to examine the opportunity costs that households are prepared to forgo in order to acquire a mobile phone as part of their livelihood strategy.

1.8 Thesis Paper Structure

A literature review on the conceptual framework of ICTs and poverty as well as the socio-economic impacts of mobile phones are covered under the dissertation report, Chapter 2. Chapter 3 follows with the institutional structure and process of ICTs in the case study location, Uganda. This includes a historical overview of the country's pro-poor telecommunication policy particularly leading to the regulation on universal access. This follows in Chapter 4 with the methodology, data collection tools, and data analysis used for the case study. Chapter 5 reveals the findings from the analysis and covers possible limitations of the data. Lastly, Chapter 6 draws an analysis and summary of the study thereby concluding the case of mobile phone and spending behaviour in Katote village, Wakiso District, Uganda.

2.0 Lessons Learned: Analysis and Conclusion

2.1 A Tool for Development?

The recent introduction of mobile phone telephony in rural Uganda brings great change to its citizens. The country shows phenomenal uptake rates and the government is maturing in policy development and research in telecommunications. The price of the mobile phone handset and airtime services continue to drop dramatically in price and new mobile phone service businesses are sprouting throughout rural and urban areas as a result of improved legislation and establishment of a regulatory communications body. The Ugandan government reflects progressive policy to ensure services reaches even the most rural and remote parts of the country under compliance to universal service regulation. Even with universal service obligations, the question remains if the most vulnerable are able to participate in the new knowledge economy and what other familial barriers are hampering the outreach of communications to the poor. With many of Uganda's positive conditions for telecommunication policy, further research needs to address how the mobile phone industry affect rural household livelihoods.

As a result, this case study gathers initial evidence about the changing well-being of the rural disadvantaged with mobile phone access under the current Uganda environment. While this study only examines a small sample of household assets, it illustrates a case of how homes are utilising spending strategies on the mobile phone and other assets. These assets help to improve and to gain additional stock for the family which would eventually help to make that transition out of digital poverty. Measured through the changing spending patterns (namely substitution, financial service provision, and intra-household asset negotiation), the analysis reveals long-term benefits of this asset-enhancing tool, which improves emergency response to shocks and opens up opportunity for enriched income generating activity.

2.2 Sacrifices for Long Term Opportunity with Mobile Phone

While not clearly identified by international agencies as a tool to development, the mobile phones become long-term economic growth investments for the disadvantaged

as were the examples of families in Katote. The findings reveal households who happily cope with unpleasant sacrifices such as reduction of food consumption or sanitation in a perceived short-term. For example, when one woman was asked how she felt when she went without food for the mobile phone, she said, "I am happy because it is the phone that brings money" (HH3, wife of head, 2007). They hope that the mobile phone would improve their opportunities with income and jobs in the long-term. Regardless of whether the families are landless or property owners, both are highly vulnerable to making mainly short-term sacrifices of what is considered basic needs. However, in the long term, income security may improve if the mobile phones are utilised for productive work. The one example of improved monitoring of one household's brick business already show better profits for the farming home who would previously be struck with robberies. The majority of mobile phone subscribers believe that the mobile phone will increase their business opportunity and lower costs. The perception that the technology will provide future income and economic prosperity, thus justifies the manageable yet unpleasant loss for mobile phone ownership. There is a major willingness to pay now and see an improvement of their lives later. The perception of long-term improvement pushes both the landless and homeowners to invest in mobile phones.

One explanation for this is that mobile phones give people a sense of opportunity. No other expenditure in a household budget offers such potential for dramatic immediate change like this communication device. While improved access to food and sanitation would improve their livelihoods, if there is no mechanism to sustain or pay for these amenities, the poor remain in the same dire circumstances. Houses take a long time to build and large capital investments are not readily available to the poor. Improved food access and sanitation and new housing do not immediately help to improve job prospects nor move households to the next knowledge economy. All across Africa many developing countries are finding their citizens investing in mobile phone technology before meeting the needs of improved sanitation, water, health, housing and education. Citizens are creating a new form of development by improving the access to markets and jobs and are willing to make small short-term, unpleasant sacrifices if an economic improvement in their livelihoods can be seen with the mobile phone.

Mobile phone can also assist households when faced with unpredictable shocks. While the everyday sacrifices made for mobile phones can have either incremental benefit or detriment for the families, the greatest effects on poverty reduction that mobile spending had on a disadvantaged homes are during vulnerable shock experiences. Regardless of whether identified as landless or property owning households, the mobile phone drives much of those shock costs down and allows families to better financially manage and cope with the situation, incurring lower travel costs, more efficient action, improved access to information and less trauma. Immediate outcomes of income savings and cost mitigation are found particularly during vulnerable situations like death or illness in the family. Security increases for all families through reduced loss of property. In a poverty dimension, the poor are constantly falling in and out of poverty as a result of frequent shocks. When a family is not able to quickly recover from one shock after another, those poor households appear to fall deeper into poverty. The probability of the family incurring drastic loss due to an unpredictable shock are mitigated and lowered when families are able to respond to the shock in more timely manners. One example of cost mitigation is in the study when the farmer's wife was able to contact her husband after a motorcycle accident instead of incurring high costs for a taxi and hospital visit. One wife recalls the ease of contacting her husband during pregnancy complications and having him take her home after the necessary hospital days (HH4, wife of head, 2007). A family's ability to lower the number of overnight hospital days or ability to avoid transport cost during desperate situations are major cost saving strategies implemented with the quick dial of the mobile phone to their family. The mobile phone presence has changed the extent to which the shock pushes the poor into poverty. The mobile phone helped mitigate the depth of poverty experienced and reduces many costs which used to burden the poor. In the case before mobile phones, families would spend tremendous cost on travel and time in contacting family members about a funeral or sickness. From the results, Katote households agreed that this communication device provided a means of timely responses, reduced surprises with available information, allowed the ability to multi-task and plan during shocks, engaged less time to physically search individuals and less emotional stress during the really difficult ordeals.

2.3 An Obstacle to Development?

While there are many positive impacts that accompany access to mobile phones, there are also negative impacts. The idea that families are demonstrating sacrifices of basic needs such as food security and improved water or sanitation is, indeed, a potential obstacle to the perceived requirements for human development. The individuals with mobile phones are choosing to meet needs other than food, and in this case, they are selecting phone airtime over food. The assumption of meeting basic needs like food and sanitation are being challenged by the mobile phone. People are not simply passing through predetermined development phases as one would intuitively believe. The high value of the mobile phone reveals households re-prioritizing their perception of needs and forthrightly, "jumping phases" or choosing to address their communication needs instead of basic needs.

The assumption also arises that when an individual possesses a mobile phone, their basic needs have already been met. In the findings, one starts to find examples of families who are making the choice to own and maintain a mobile phone before feeding their family or finding improved sanitation and water sources. The research shows that people themselves are expressing their true needs versus what one would assume are urgent needs such as food and sanitation. Citizens are challenging this pre-set linear way of thinking of motivation and human development.

The findings also reveal continuous gender imbalance of mobile phone usage and spending through unequal partner control of the mobile phone and reduced well-being from unprofitable phone calls. Certain family members perceive mobile phones are actually leading to poverty. They suffer under the exacerbated control of assets by the family's income earner or household head. While some members are increasing their use of the mobile phone, the more vulnerable members feel that they are not benefited from the new technology purchased. For example, some focus group women were limited in usage of the phone or they were put under escalated control by their partners. Certain household members rarely little use of the mobile phone while the household head maintained possession of the tool. Women, for example, have calls completed on their behalf as partners who feared the overuse of their airtime. The fear may also come a perception of the head's authority breakdown in the households of this conservative

community. These negative perceptions appear to re-enforced asset control particularly with the mobile phone within the household. They also saw their own personal use of the mobile phone lead to little profits. Even in fruitful social calls with relatives, their own inefficient use of the tool directed the perception of mobile phones as not productive and in fact, inducing poverty unto their family. While the current study explored the current effects of asset and budget changes as a result of the mobile phone, the researcher suggests further work, which monitors these uneven gender trends particularly within these rural households. Besides gender, this study would also benefit from longitudinal panel data over time which records changes of well-being levels under further diffusion of the mobile phone. Using some controlled household cases with mobile phones and others without, further studies can provide cost-benefit analysis of the two sample control groups. Are low-income households with mobile phones quicker to move out of poverty than those without? Secondly, while this is the case of rural families, further research could be expanded to exploring whether landless families in the urban setting undertake similar sacrifices for mobile communications. As this case study was limited to only one geographical area, such research could further investigate the asset portfolios and spending behaviour changes in other rural poor areas either in Uganda or other developing country regions.

2.4 Implications of the Katote Case Study

The implications of this study help to re-emphasize the need to explore beyond income poverty and examine new indicators such as asset portfolios. ICT4D studies can use this study as another socio-economic contribution to a generally techno-centric field. Further investigation on technology such as the mobile phone effects on poverty can assist the direction of a country's poverty reduction plan as well as the current thinking of development by international agencies. As mobile phone growth increases in developing countries, the intuitive thinking of basic human needs for the poor may need to be re-evaluated. If people are able to own or use a mobile phone yet choose not to improve the state of sanitation or water sources, it is a clear case to re-analyse the assumptions that currently exist within development studies of what is necessary within these household's livelihoods. Policy should understand the reasons for sacrifices being made by poor

households and make provision for assistance if necessary. Provisions that help improve business opportunities as has been seen from increase of public call box businesses (as a result of eliminating business license fees for such business) must be promoted. Development agencies and government must thus see a paradigm shift of what they consider development and what indicators they use to judge whether a country should or should not be funded. Many agencies may find it a non-priority to examine ICTs when they assume, in their own development frameworks, that helping households with their basic needs is what is most needed. Yet in this example, one finds a strong increase of mobile phone usage when families maintain the same dire development indicators of low electricity, poor water access and low education levels. A country with increasing mobile phone access may benefit on further study to monitor the speed of development changes of well being as a result of technology.

This study has suggested that the diversification of assets for the disadvantaged will help to improve the livelihoods. The alternatives for low-income families are limited. While the mobile phone is one option to enhance asset expansion, other asset accumulating initiatives must also gain fair publicity such as communal or cooperative garden plots or expansion of the free education program. The disadvantaged must also be part of the knowledge economy and not fall deeper in to the digital divide. An idea could be a "digital ark" or the coverage that all citizens are provided with the minimum technological skills and access, similar to a social safety net or a cargo net for assets. A "digital ark" would mean governmental strategies to address affordability and accessibility gaps for the digitally poor to at least reach the minimum level of digital assets to help enhance productivity and provide for a family's sustainable livelihood. This study only cuts a small niche in an area of new research of ICT4D with emphasis on the development of people instead of technology. Further research is imperative to ensure that rural livelihoods are not left behind in this fast-moving environment of change towards the knowledge economy.

3.0 Research Results Outline

3.1 Findings from Katote, Uganda

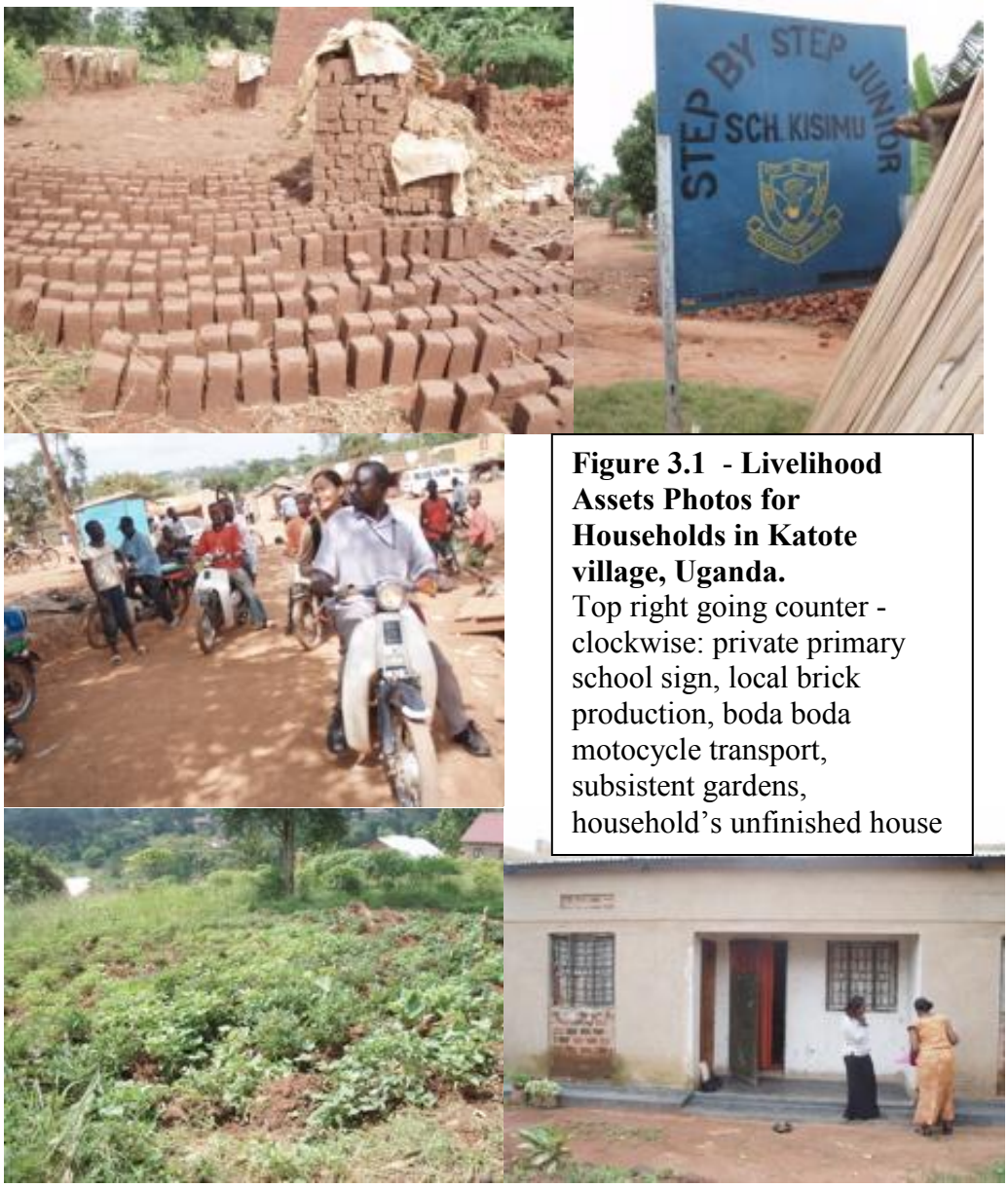

Figure 3.1 - Livelihood Assets Photos for Households in Katote village, Uganda.
Top right going counter - clockwise: private primary school sign, local brick production, boda boda motocycle transport, subsistent gardens, household's unfinished house

This section presents an outline of the research results and fieldwork findings, which took place in the Katote village, Wakiso District, Uganda, June 3-20, 2007. The section opens with an overall country background about household assets in Uganda followed by the actual household descriptions, their assets and mobile phone access and affordability within this village. This section will then present a descriptive overview of respondents' perceptions of their changes in behaviour, including an analysis of their current budget manipulations as well as their asset substitutions for access to mobile phone services. The section also touches on financial services use and intra-household asset negotiation. The analysis of these findings and further discussion is found in Chapter 6.

3.1 Well-Being and Assets

The recognition of a household's existing asset portfolio provides the context of a rural home's circumstances and complements the data findings from the spending behaviour. Assets may be utilized, combined or sold to access mobile phone services or to purchase a mobile phone. Therefore, the asset stock can give a better overall perspective of the severity of substitutions in an environment of limited resources. It also shows how some households have wisely used their mobile phone spending in enhancing their livelihoods, while others find their mobiles hindering their well-being and further driving them into poverty.

3.1.1 Household Well-Being and Assets in Uganda

An overview of household assets in Uganda for this case study has been collated through the Ugandan national statistics' household surveys and other living standards measurement surveys conducted by institutions like the World Bank or United National Development Programme. Some of the measurable household assets derived from the available data include household consumption capacity, physical assets and education levels. Firstly, Appleton's household survey analysis from 1992 to 1998 finds a slow increase of private consumption per capita (Appleton, 2001: 88). Employment is another

poverty indicator; agricultural employment in Uganda has improved since the recovery from civil war. As a result of improved consumption and employment progress, the national survey states that 31 % of Uganda's population falls below the national poverty line (UNDP, 2007) and has been dropping since 1992 (56 % below poverty line in 1992). Higher consumption levels, stabilized agricultural employment and income poverty level decrease are positive financial asset indicators of household livelihoods in Uganda.

The Ugandan population has also improved their lives through the gradual acquisition of physical assets. The most noticeable change in a household's livelihood and asset acquisition is in the form of housing. While Ugandan citizens are still lacking some of the basic amenities, home ownership appears to be main physical asset held by a majority of households.

The Ugandan government has been heavily investing in education as a means to reduce their high illiteracy rate and raise their human capital stock. Currently, 67 % of Uganda's population is literate. As of 2005/06, over 7.6 million Ugandan children are registered and attending school under the Universal Primary Education program (UPE); this number is more than double the enrolment rates in 1997 (UBOS, 2006: 18). High costs to education even under UPE are still a major deterrent for school completion particularly if there are several children in the family to fund.

The Uganda overview of household assets shows the gradual improvement of households in terms of consumption levels, housing availability and education since the early 1990s. While the improvements are noted, one-third of Uganda's population remain under the poverty line, high school fees keep primary school dropouts near 50 % and improved electricity, sanitation and water facilities remain low. The following case study will dig deeper and will try to understand how the introduction of mobile phones have today affected the livelihoods of the households in Katote village.

3.1.2 Household Well-Being and Assets in Katote

In the village of Katote, much of the previous Ugandan asset description matched the homes in this rural village. In Table 3.1, the description of each household reveals the number of family members, income levels and mobile phone ownership history.

Table 3.1 Findings: Household Characteristics

	HH 1	HH 2	HH 3	HH 4	HH 5	HH 6
Ages of Adults (female = f, male = m)	50 (f;widowed), 20 (f)	35 (m;widow), 26 (f)	35 (m), 26 (f), 29 (f)	26 (m), 20 (f)	45 (m), 40 (f), 24 (f)	60 (m), 50 (f), 20 (m), 23 (m), 24 (f), 30 (m), 27 (f)
# of children (18 and under)	6	2	3	2	6	7
Average age of Children	5	3.5	3	4	5	9.5
HH Income Level (p.month - UGX)	40,000	100,000-200,000	50,000-100,000	10,000-30,000	100,000-200,000	20,000
Main Source of Income	rent from homes	formal, printer asst.	sells herbal remedy	cyclist messenger	farmer	farmer
Secondary income source	Remittances	p/t pastor	brickmaking	Wife – sells kiosk food	Construction, remittance, wife - farm	Poultry, livestock, brickmaking, wife- mat weaving, bricks
First phone when?	2006	2005	2005	2007-05	Unknown	+-2000
Where?	Used phone, daughter's gift	used, friend	customer, gift	Used phone, friend	used	used, neighbor
Cost of phone?	0	75,000	0	20,000	??	100,000
Current phone	1 1/2 months	same phone	same phone	same phone	3 months	1 year
# of phones (incl. now)	2	1	1	1	2	2
Cost of Current Phone	85,000	n/a	n/a	n/a	Gift 0	148,000
Average Cost (p. month) Phone Services	15,000 (but son buys airtime	20,000	21,000	20,000	20,000	22,000
Homes	Owned house w/ rental units	own house, in contruction	Rental 1-bdrm unit	Rental 1-bdrm unit	Own house w/ detached units	Own house w/ detached units
Assets	Radio, house	Radio, bicycle, house	Radio	Radio, bicycle	Radio, bicycle, house, farm, livestock	Radio, bicycle, TV, house, bricks, livestock

Out of the six households studied, four owned their unfinished house (some with non-attached self-catering extensions) on a plot of land. All of the houses were unfinished concrete buildings with iron roofs, with the rest of the plot either used for livestock rearing or for subsistent agriculture. Most of these homes had outdoor pit latrines and cooking occurred from small ceramic or tin coal-based cookers outside the home, sometimes in a makeshift wooden shed. The other two families that were surveyed lived in these one-room rental blocks called "muzigos" built alongside each other. The families were paying 15,000 UGX ($ 9.09 USD) per room (one family rented one room, another family rented three rooms), while families who own their homes report paying no rent. All households had a mobile phone and at least one small battery-operated radio.

In term of human assets, the UPE program unfortunately did not reach the community of Katote. There were several primary schools and pre-primary schools in Katote, but none of them were UPE-government funded. In terms of skills assets, it appeared that the homes were still largely involved with agricultural labour or simple brick making skill. Of the Katote residents surveyed, most of the respondents had their primary job and subsequent additional work. The range of income earned by the household head was from 10,000-200,000 UGX ($ 6 - $121 USD) per month which averages at 75,800 UGX ($46 USD) a month. Most income reliance of the families remained with the household head's earnings.

In many parts of Uganda, villages were surrounded by fertile soils making agriculture extremely productive in the region with a diversity of grown produce. The weather supported productive crop growth through an abundance of rain, humidity and sunshine. The rich land and ideal weather conditions have benefited farming communities with rich production of vegetables and fruit. Social capital appeared to exist in interest and informal groups and local government in the community of Katote.

In summary, the description of assets provides context and insight for this village study. The Ugandan government has not made satisfactory progress in providing all families with electricity, running water, or improved sanitation. Uganda still fits the demographic of an agricultural country with a small percentage of the adult population who have completed primary school education and one third of the population living below the absolute poverty line.

Figure 3.2 – Photos of Mobile Phone Service Use and Access in Katote, Uganda. Mobile Phone number written on walls for business, wireless public call boxes and prices, local repair shop (next village over) and a mobile phone battery charging centre.

3.2 Mobile Phone Access in Katote

The village of Katote has gained mobile phone connectivity in the last decade and this next section examines how the mobile phone and access have been accepted into the community. Mobiles phones and mobile phone services appeared to be readily available in the community of Katote. Mobile phone services were just as accessible. Services included: airtime credit/ sim card selling, callbox/public pay phone, mobile phone repair (in nearby village), mobile handset battery charging centre[2], and the sale of mobile phone accessories. work sometimes with or without a fee. There was a proliferation of mobile phone services within Katote, which was more than adequate to serve the village's communication needs.

3.3 Affordability of Mobile Phones and Phone Services

The near proximity of access to mobile phones and mobile phone services meant that villagers did not need to walk long distances to access a phone outlet, as occurs in some of the other rural villages. Even with convenient access, the affordability of calls or handsets in Katote depended upon whether the income generated by the homes was sufficient to match with the prices of mobile phones and their respective services. Many of the older family members had access to some income and therefore could choose to allocate a portion of their spending to the purchase of a mobile phone handset or services. Even women who were doing unpaid house help received a small allowance per day from the working partner for the daily food purchases, children's needs and if needed, airtime. Many of the same women stated that their husbands provided them with airtime. As for the elderly, their older children who lived outside the village would top-up their parent's phones by electronically transferring airtime from their phone to their parent's phone. The findings show that family members including the most vulnerable were able to use existing income sources or new sources (for example, airtime transfer) in order to afford a mobile phone or its services.

[2] A mobile handset battery charging centre is a shop where customers can bring their mobile phones for battery charging. Charging centres exist throughout Uganda because of the low access to electricity.

3.4 Spending Behaviour: Substitutions

While some new income generating opportunities have help to make mobile phones and services affordable, many household scenarios in Katote referred to substitution as a way to meet communication costs within their limited budget. These spending patterns varied between the one-time purchase of the mobile phone, and the smaller incremental expenses like airtime, mobile phone repair and battery charging. This section, therefore, divides substitution into two sections: substitutions for the purchase of, a) the mobile phone handset, and b) mobile phone services.

3.5 Mobile Phone Service Substitutions

All respondents were asked whether they recalled substituting a household item within their regular budget within the previous month in order to purchase airtime or services for their mobile phone. Substitution reported by these rural families included taking funds from the transport budget and from store-bought foodstuffs. Among family members, women were more likely to sacrifice critical family expenses like food while men sacrificed more personal, discretionary spending items such as entertainment costs.

3.5.1 Transport cost substitution

From the study, the most commonly stated substitution made by households by both men and women was transportation expenses. In meeting certain work or personal obligations, many households stated that the preferred choice was spending money on a phone call rather than incurring transportation cost (either the cost of physically going by foot, taxi, or bus themselves or sending a hired messenger) to conduct the same job. The major reduction of transport cost was from mitigating vulnerable situations. Business costs were also reduced. All six families and other key respondents mentioned the mobile phone use lowered and replaced transport costs during vulnerable situations, through efficient use of other delivery resources, and by use of cheaper means of transport.

3.5.2 Purchased Food Substitution

The second most common substitution response for mobile phone airtime was the replacement of store bought groceries. Most of the homes would reduce the portion that they would regularly purchase for the home and use the small savings for airtime purchase. Some of the daily household item reductions included: sugar, flour, cooking fat and milk. A few households mentioned reducing the number of days the family would eat meat. Besides food, another example of money saving methods for airtime was the use of cheaper detergent substitutes. Out of the six households, four had stated making substitutions of regular budgeted store bought food-stuffs in order to spend on mobile phone services.

3.5.3 Home Production of Food

There was also a difference within the grocery substitution itself among different types of households. Those homes with garden plots would state that they would eat more food from their gardens, a more or less free substitute, instead of buying store bought food. The resulting savings would then be used for mobile phone airtime. Since the family could liquidate other fixed assets or find cheaper alternative substitutes, the household did not have to give up food in order to match the cost of a mobile phone. It was clear that the households with land or gardens had greater alternatives in meeting store-bought food shortages.

Homes without gardens responded differently by actual removal of food from the diet for the day or week to save for the mobile phone. The most at risk from well-being deterioration as a result of mobile phone purchase were the landless asset-deficient families. The money spent on mobile phone services directly weakened food security (lower food purchase) and children's needs of the families in rental dwellings. The reduced portions of food imply a decrease of calories consumed by the family. These young households had a limited asset pool to use in order to meet the cost of a mobile phone. The low diversification of activity for the landless household led to drastic survivalist outcomes on the family's well-being.

3.5.4 Gender Differences

Responses on mobile phone service substitutions between men and women were also different. While women were most likely to detail the everyday household expenses they would give up for airtime, men would more likely describe personal sacrifices.

Men and women also had different responses when asked about sacrificing events or ceremonies for the mobile phone. Some men would state saving money by not attending a funeral or village function. The wife in the same family stated that while she would give up going to a party, she would not give up going to funerals for airtime (HH6, wife, 2007). Women were more hesitant in sacrificing attendance certain cultural ceremonies such as funerals with a mere phone call while men were more frank in calling the family about his non-attendance.

3.6 The Fixed Cost: Mobile Phones

The act of substitution for a fixed item like a mobile phone is infrequent compared to the act of drawing together the savings or funds to afford the handset. One of the farmers stated that he had sold off one of his small plots in part to buy the new mobile phone and a poultry housing project (HH6, farmer, 2007). Two of the homes stated putting away savings from their income into their informal savings groups and then used their accumulated savings to purchase the mobile. The other two families stated receiving their handset as gifts, therefore substitutions did not occur in their case.

The experience of owning past phones had helped some homes in their spending decision for a higher quality, mid-range priced (around 100,000 UGX or $60 USD) phone, which met their specific needs. The choice of mobile phone can also vary depending on how informed the family member is on the quality of purchased phone.

Sometimes families opted for the most financially productive choices like buying a public call box[3] business instead of a mobile phone or selling off the mobile phone. The findings show some individuals trading the mobile phone handsets or buying other productive assets which can improve their livelihoods portfolio.

[3] A public call box is a small public phone (usually wireless) business used to make or receive calls. They are either located in a shop or on a standalone wooden platform. The call box usually has a vendor who assists with making phone calls and collects payments.

In conclusion, sacrifices also occurred for mobile phone purchases however, the forgone costs existed more in the form of alternative things that could have been bought with the income instead of a mobile phone. Substitutions for mobile phones were not as common as the incremental household sacrifices made for mobile phone services. The goods or services that were stated being sacrificed include children's clothes or school fees. Inexperience also ended up being a costly experiment for many first time buyers particularly those who buy cheaper used phones. The strategies attended by households are diverse and evidently led to concrete changes from their lives before the mobile phone.

3.7 Financial Services

In order to understand the spending patterns of those with mobile phones, the various financial services like savings utilized as a livelihood strategy must be examined. Different financial services strategies have assisted households to maintain and own a mobile phone.

3.7.1 Making use of savings

As stated previously, two households had utilised their informal savings group to pay for their mobile phone. In terms of spending, women and men did use mechanisms or tried to plan to ensure that money was put aside for household item purchases. This was not a big strategy change in spending behaviour; it continued current savings patterns that men and women were doing before the ownership of mobile phone.

3.7.2 Loans and Credit

One key informant stated that they bought a phone from their neighbour or friend and they were usually able to pay the phone off through small monthly or weekly increments. Credit through friends and families appeared to be a necessary financial and social capital outlet for many households. Microfinance program was not mentioned as a tool commonly utilised to save for a mobile handset. While informal borrowing was a financial tool that existed within the village, very few utilised this source for purchasing

their mobile phone handset or pay for mobile phone services.

In conclusion, another spending strategy undertaken by households in order to afford mobile phone services or handset is making use of financial services. However, from these household cases, it appears that nothing out of the ordinary has occurred with their use of informal savings groups or loan programs as a result of mobile phone ownership of services use.

3.8 Intra-household Dynamics

The findings also examined mobile phone ownership through the spending behaviour between individual family members and how such relationships have changed with the mobile phone introduced into household. Mobile phone ownership within a family has been found to be uneven. The mobile phones of the families interviewed were owned by the household heads. Phones were kept by the income-earning individual and limited use was allowed to other family members. Among the key informants interviewed, a handset acquired by the wife of the household was purchased by the husband. Partner control appears to be exacerbated to some extent with some women owning mobile phones. At the one extreme, the mobile phone has re-emphasized budget control for the income earners. Some household heads claimed the mobile as their own and not to be shared (without their permission) by other family members. The reason that the mobile phone was not shared was to keep family members from wasting costly airtime on an unproductive call. If a phone call needed to be made, the phone owner would make the call on behalf of the family member. The mobile was not always shared as the phone owner stated that he or she did not want to share secrets with family members.

Lastly, younger children were most unlikely to own or utilise the mobile phone. One household was influenced by their children to buy a phone as the father bought a mobile to stay in touch with his children in boarding school (HH2, widowed man, 2007). As the children grow older, however, their adoption of mobile phone technology is quick and these young adults were sometimes looked upon for advice on the mobile phone as was the case for two households. The ownership of mobile phones within families has

not necessarily changed household ownership of assets between members in the household.

The elderly also stated having access to mobile phones because of a newly acquired handset from their son or daughter. Most of these sons or daughters live in another village with their spouse and the purchase was made in order for the children to stay in touch with their parents. As for some of the elderly key respondents, many of them stated having full ownership of a phone even when presented as a gift. The findings have seen the elderly become connected mobile phone owners re-enforced by their older children outside of the village.

Mobile phone ownership brought about uneven mobile phone use and purchase in the households of Katote. While children and elderly appeared to improve their phone ownership over time, income-earning partners rather chose to limit use by other household members.

3.8.1 Household Budget

Where the husband is the wage earner and wife is a stay-at-home mother, the husband generally left an allowance or daily amount of money behind for the wife in order for the family to make everyday purchases of food, airtime or other necessities. Beyond this small daily allowance, the non-income earning partner usually has little access to the rest of the husband's earnings and indeed, much of the extra earnings are unknown to the partner. Therefore, budgeting for the household head's mobile phone use or purchases remained a decision undertaken solely by the mobile phone owner. Household budgeting for the mobile phone has not changed the budgeting dynamics between family members.

3.8.2 Women Small business

Women more likely to have a mobile were those who attempted to contribute to the household income with their own new business. The focus group women who purchased their mobile through business profits felt more ownership of their phone than those with partner-purchased mobiles. The only household with a mobile phone ownership by a

woman was the widowed woman who made an earning from her rental homes. The other households had women engaged in unpaid housework with little use of the mobile. While in some instances women were still required to report back her profits to her husband, those wives with husbands engaged in long distance work were able to sustain their family's livelihoods with the extra income from their new small business. Small businesses for women, in many cases, have improved mobile phone ownership for the women within the households in Katote.

3.8.3 Spending Influenced by Status

Lastly, some of our interviewees stated that their spending choices were also influenced by the mobile phone standards set by their peers. One farmer said, "I compared mine with the phones of other people…. Theirs would have logbooks, which would help them know the functions on the phone. So I thought that I would buy a new phone that has a log book" (HH6, farmer, 2007). Another man stated, "…two of my friends have the same phone" (HH2, widowed man, 2007). The status symbol influenced spending behaviour of phones particularly among teenagers or college students. One college student from the focus group stated, "At the university without a phone, on campus, you look backwards" (Focus Group #1, Woman University Student, 2007) Spending behaviour as a result of perceived status did affect respondents in the village of Katote.

3.9 Conclusion

In conclusion, there have been clear changes in spending strategies by households through substitutions and intra-household asset negotiation in the village of Katote. These rural households, with its poor electricity, sanitation and water facilities and high education costs, continued to use their small variable incomes to build their assets mainly consisting of houses, farming land, and more recently, the mobile phone. The availability of mobile phones and its services were more than adequate in the village of Katote and even on meager wages, have allowed the households to afford phone calls to their family and business associates. While business opportunities have helped to increase some

incomes to afford the mobile phone, most households have made sacrifices in their everyday lives in order to afford the communication costs. In terms of substituting transport costs, the mobile phone call mitigated vehicle cost during vulnerable situations and helped to develop use of more efficient transport services for business. Cheaper transport options were used to save money for mobile phone top-up. Secondly, households sacrificed daily shop-bought household items like sugar, cooking fat and soap for mobile phone services. Those with gardens were able to replace those missing meals with their produce while other homes were left to go without a meal that day. As for the mobile phone handset, the act of drawing savings was the dominant strategy rather than substitution. While savings and loan services did not change dramatically with the purchase of the mobile phone, informal savings groups were still utilised by some households. Finally, the household use of assets remains uneven and in some cases, exacerbated partner control particularly on mobile phone use. Income-earning partners limited use of the phone due to fear of misuse and cost of the call. Homemakers used their small food allowance to pay for their mobile phone use and have no information about the use of their partner's earnings. Women who started small businesses in Katote were able to justify their personal mobile phone use or purchase and felt genuine phone ownership than those with phones purchased by husbands. Peer pressure and status also had a hand in mobile phone purchase decisions. The spending strategies of substitution, informal savings and intra-household use were evident in order to accommodate the highly demanded communication needs clearly taking place in Katote and altering the everyday lives of these rural households and community.

The full report and research guide book has been attached with this 30 page summary.